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Heart Failure and Cardiomyopathies

SOLUBLE ST2 AND GALECTIN-3 ARE ASSOCIATED WITH SUBCLINICAL DIASTOLIC DYSFUNCTION IN OLDER ADULTS

Poster Contributions
Hall C
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Session Title: Heart Failure and Cardiomyopathies: Role of Biomarkers in Heart Failure
Abstract Category: 12. Heart Failure and Cardiomyopathies: Clinical
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Background: Diastolic dysfunction (DD) is common in asymptomatic older adults and predicts the development of subsequent heart failure (HF). We examined the association of biomarkers of cardiac stress (soluble ST2 [sST2]) and fibrosis (Galecin-3 [Gal-3]) with DD in older adults.

Methods: Gal-3 and sST2 were measured in older adults without prevalent HF and with normal LVEF in the Cardiovascular Health Study. DD was defined by a ratio of early (E) to late atrial (A) mitral Doppler peak flow velocity 1.5; in sensitivity analyses, an elevated NT-proBNP>190 pg/mL was additionally required for the diagnosis of DD. Logistic regression was used to estimate the association of each biomarker with DD, adjusting for demographics and co-morbidity. Biomarkers were analyzed as quintiles, continuous measures, and based on FDA-approved cut-points.

Results: Among 3350 with complete data for analysis, mean age was 72.7 ± 5.4, 39% were male, 14% were African-American, and 24% had DD. After adjustment for potential confounders, greater sST2 and Gal-3 were strongly associated with DD (table). In sensitivity analyses in which DD was defined as abnormal E/A ratio and NT-proBNP, associations were stronger (sST2>35 ng/mL: OR=2.16 [95%CI: 1.49, 3.14]; Gal-3>17.8 ng/mL: OR=2.77 [95%CI=1.37, 2.29]). Neither marker associated with LV mass after adjustment (p>0.3).

Conclusions: Higher galectin-3 and sST2 are associated with a greater likelihood of asymptomatic DD in older adults, findings which are not dependent on LV mass.

Association of sST2 and Gal-3 with abnormal diastolic dysfunction, among those without HF and with normal LVEF

	Unadjusted	Risk-factor adjusted
sST2 (N=3350)	Odds Ratios (95% CI)	
Quintiles		
Quintile 1	1.0	1.0
Q2	1.07 (0.82, 1.40)	1.11 (0.86, 1.44)
Q3	1.40 (1.08, 1.82)	1.11 (0.86, 1.44)
Q4	1.44 (1.11, 1.86)	1.23 (0.95, 1.58)
Q5	1.84 (1.43, 2.36	1.42 (1.10, 1.83)
ln(ST2)	1.99 (1.58, 2.49)	1.54 (1.20, 1.97)
>35 ng/mL	1.62 (1.29, 2.03)	1.35 (1.06, 1.72)
Galectin-3 (N=3311)		
Quintile 1	1.0	1.0
Q2	1.19 (0.91, 1.55)	1.18 (0.90, 1.55)
Q3	1.16 (0.89, 1.51)	1.15 (0.87, 1.51)
Q4	1.33 (1.02, 1.72)	1.23 (0.94, 1.61)
Q5	1.95 (1.52, 2.51)	1.66 (1.27, 2.17)
ln(Gal-3)	1.96 (1.54, 2.48)	1.66 (1.29, 2.13)
>17.8 ng/mL	1.50 (1.27, 1.77)	1.32 (1.11, 1.57)

Risk factor-Adjusted: age, gender, race, SBP, DBP, anti-hypertensive medications, coronary heart disease, and diabetes.